

ABSTRACT

In securities valuation, in setting the initial offering price of a financial instrument, or in later re-valuation as financial parameters such as interest rates may change, an estimate of the value of the instrument may be represented as a multi-dimensional integral. For evaluation of the integral, numerical integration is preferred with the integrand being sampled at deterministic points having a low-discrepancy property. The technique produces approximate values at significant computational savings and with greater reliability as compared with the Monte Carlo technique. Further to estimating the value of a complex security, sampling at points of a low-discrepancy deterministic sequence can be used in estimating value at risk in portfolio structuring.